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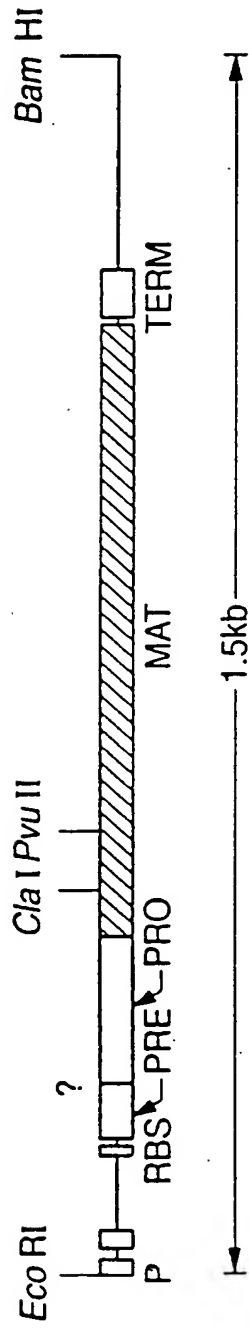


FIG. 1A

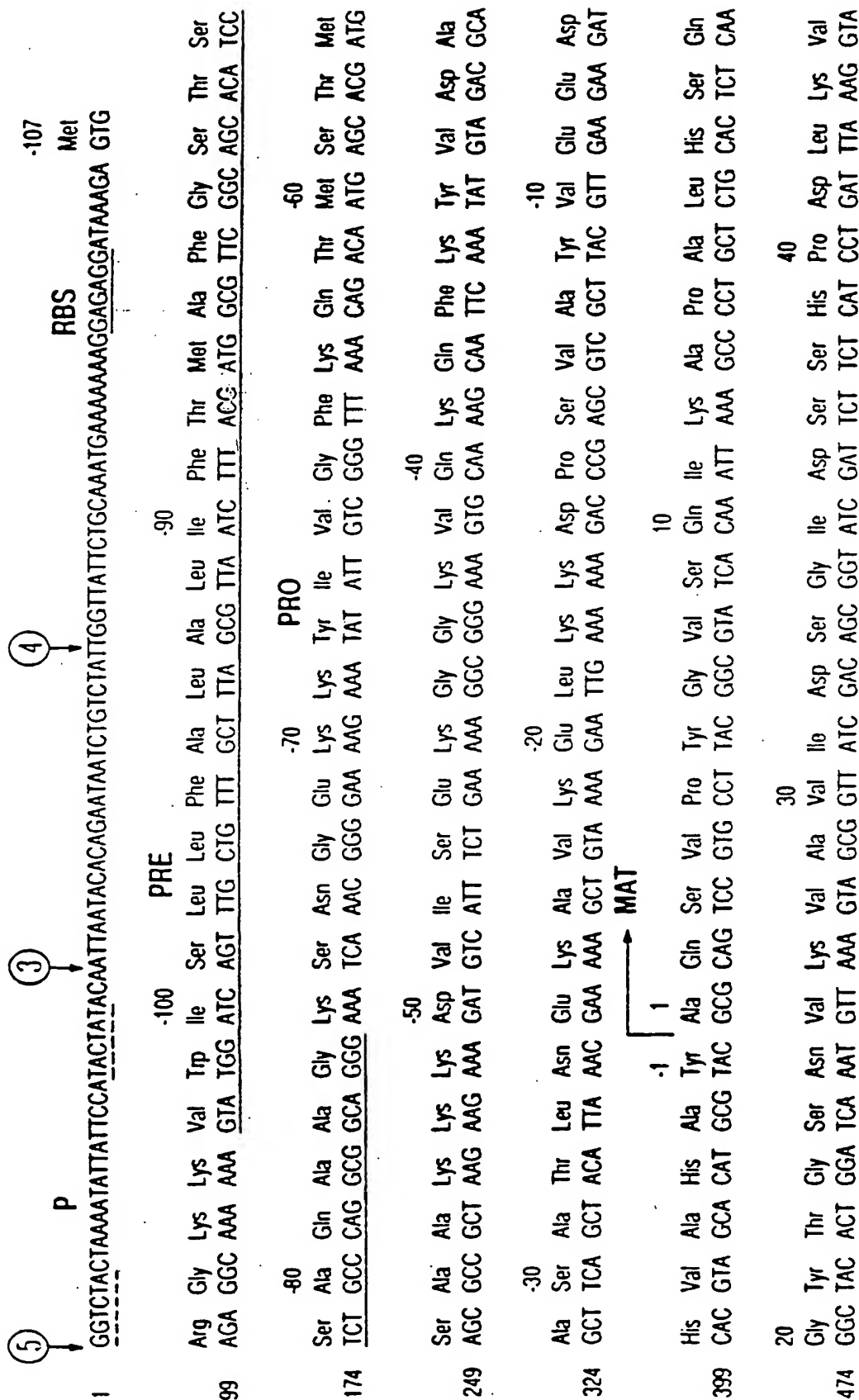


FIG. 1B-1

549	Ala	Gly	Gly	Ala	Ser	Met	Val	Pro	Ser	Glu	Thr	Asn	Pro	Asn	Asp	60	Asp	His	Gly	Thr	His	Val	Ala
	GCA	GGC	GGA	CCC	AGC	ATG	GTT	CCT	TCT	TCT	GAA	ACA	AAT	CCT	TTC	CAA	GAC	AAC	AAC	TCT	CAC	GGA	ACT
524	Gly	Thr	Val	Ala	Ala	Leu	Asn	Asn	Ser	Ile	Gly	Val	Leu	Gly	Val	Ala	Pro	Ser	Ala	Ser	Leu	Tyr	Ala
	GGC	ACA	GTT	GGC	GCT	CTT	AAT	AAC	TCA	ATC	GGT	GTA	TAA	GGC	GTT	GGC	CCA	AGC	GCA	TCA	CTT	TAC	GCT
699	Val	Leu	Gly	Ala	Asp	Gly	Ser	Gly	Gln	Tyr	Ser	Trp	Ile	Ile	Asn	Gly	Ile	Glu	Trp	Ala	Ile	Ala	Asn
	GTT	CTC	GGT	GCT	GAC	GGT	TCC	GGC	CAA	TAC	AGC	TGG	ATC	ATT	MAC	GGA	ATC	GAG	TGG	GCG	ATC	GCA	AAC
774	Asp	Val	Ile	Asn	Met	Ser	Leu	Gly	Gly	Pro	Ser	Gly	Ser	Ala	Ala	Leu	Lys	Ala	Val	Ala	Lys	Ala	Val
	GAC	GTT	ATT	AAC	ATG	AGC	CTC	GGC	GGA	CCT	TCT	GGT	TCT	GCT	GCT	TTA	AAA	GCG	GCA	GTT	GAT	AAA	GCC
849	Ser	Gly	Val	Val	Val	Val	Ala	Ala	Ala	Gly	Asn	Glu	Gly	Thr	Ser	Gly	Ser	Ser	Ser	Thr	Val	Gly	Tyr
	TCC	GGC	GTC	GTA	GTC	GTT	GGC	GCA	GCC	GGT	AAC	GAA	GGC	ACT	TCC	GGC	AGC	TCA	AGC	ACA	GTG	GGC	TAC
924	Lys	Tyr	Pro	Ser	Val	Ile	Ala	Val	Gly	Ala	Val	Asp	Ser	Ser	Ser	Asn	Gln	Arg	Ala	Ser	Phe	Ser	Val
	AAA	TAC	CCT	TCT	GTC	ATT	GCA	GTA	GGC	GCT	GTT	GAC	AGC	AGC	AAC	CAA	AGA	GCA	TCT	TTC	TCA	AGC	GTA
999	Glu	Leu	Asp	Val	Met	Ala	Pro	Gly	Val	Ser	Ile	Gln	Ser	Thr	Leu	Pro	Gly	Asn	Lys	Tyr	Gly	Ala	Tyr
	GAG	CTT	GAT	GTC	ATG	GCA	CCT	GGC	GTA	TCT	ATC	CAA	AGC	ACG	CTT	CCT	GGA	AAC	AAA	TAC	GGG	GCG	TAC
1074	Thr	Ser	Met	Ala	Ser	Pro	His	Val	Ala	Gly	Ala	Ala	Ala	Leu	Ile	Leu	Ser	Lys	His	Pro	Asn	Trp	Thr
	ACG	TCA	ATG	GCA	TCT	CCG	CAC	GTT	GCC	GGA	GGC	GCT	GCT	TTG	ATT	CTT	TCT	AAG	CAC	CCG	AAC	TGG	ACA

FIG. 1B-2

CONSERVED RESIDUES IN SUBTILISINS FROM
BACILLUS AMYLOLIQUEFACIENS

1	10	20
A Q S V P . G	A P A . H . .	G
21	30	40
. T G S . V K V A V . D . G		H P
41	50	60
D L . . . G G A S . V P		Q D
61	70	80
. N . H G T H V A G T . A A L N N S I G		
81	90	100
V L G V A P S A . L Y A V K V L G A . G		
101	110	120
S G . . S . L . . G . E W A . N		
121	130	140
V . N . S L G . P S . S		A . .
141	150	160
. G V . V V A A . G N . G . . .		
161	170	180
. Y P . . Y		A V G A .
181	190	200
D . . N . . A S F S . . G . . L D . . A		
201	210	220
P G V . . Q S T . P G . . Y		N G T
221	230	240
S M A . P H V A G A A A L		K . . .
241	250	260
W . . . Q . R . . L . N T . . . L G . .		
261	270	
. . Y G . G L . N . . A A . .		

FIG._2

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COMPARISON OF SUBTILISIN SEQUENCES FROM:

B.amyloliquefaciens

B.subtilis

B.licheniformis

B.lentus

01	10	20	30	
1 Q S V P Y G V S Q I K A P A L H S Q Q G Y T G S N V K V A V I D S G I D S S H P				
A Q S V P Y G I S Q I K A P A L H S Q Q G Y T G S N V K V A V I D S G I D S S H P				
A Q T V P Y G I P L I K A D K V Q A Q G F K G A N V K V A V L D T G I Q A S H P				
A Q S V P W G I S R V Q A P A A H N R G L T G S G V K V A V L D T G I S T * H P				
41	50	60	70	
D L K V A G G A S M V P S E T N P F Q D D N N S H G T H V A G T V A A L N N S I G				
D L N V R G G A S F V P S E T N P Y Q D D G S S H G T H V A G T I A A L N N S I G				
D L N V V G G A S F V A G E A Y N * T D G N G H G T H V A G T V A A L D N T T G				
D L N I R G G A S F V P G E * P S T Q D G N G H G T H V A G T I A A L N N S I G				
81	90	100	110	
V L G V A P S A S L Y A V K V L G A D G S G Q Y S W I I N G I E W A I A N N M D				
V L G V S P S A S L Y A V K V L D S T G S G Q Y S W I I N G I E W A I S N N M D				
L G V A P S V S L Y A V K V L N S S G S G S Y S G I V S G I E W A T N G M D				
V L G V A P S A E L Y A V K V L G A S G S G S V S I A Q G L E W A G N N G M H				
121	130	140	150	
V I N M S L G G P S G S A A L K A A V D K A V A S G V V V A A A G N E G T S G				
V I N M S L G G P T G S T A L K T V V D K A V S S G I V V A A A A G N E G S S G				
V I N M S L G G A S G S T A M K Q A V D N A Y A R G V V V A A A A G N S G N S G				
V A N L S L G S P S A T L E Q A V N S A T S R G V L V A A S G N S G A G S				

FIG._3A

161 170 180 190
 S S T V G Y P G K Y P S V I A V G A V D S S N Q R A S F S S V G P E L D V M A
 S S T V G Y P A K Y P S T I A V G A V N S S N Q R A S F S S A G S E L D V M A
 S T N T I G Y P A K Y D S V I A V G A V D S S N S N R A S F S S V G A E L E V M A
 * * * I S Y P A R Y A N A M A V G A T D Q N N R A S F S S Q Y G A G L D I V A

201 210 220 230
 P G V S I Q S S T L P G N K Y G A Y N G T S M A S P H V A G A A A L I L S K H P N
 P G V S I Q S S T L P G N K Y G A Y N G T S M A S P H V A G A A A L I L S K H P T
 P G A G V Y S S T Y P T N T Y A T L N G T S M A S P H V A G A A A L I L S K H P N
 P G V N V Q S S T Y P G S T Y A S L N G T S M A S P H V A G A A A L V K Q K N P S

241 250 260 270
 W T N T Q V R S S L E N T T K L G D S F Y Y G K G L I N V Q A A A Q
 W T N A Q V R D R L E S T A T Y L G N S F Y Y G K G L I N V Q A A A Q
 L S A S Q V R N R L S S T A T Y L G S S F Y Y G K G L I N V E A A A Q
 W S N V Q I R N H L K N T A T S L G S T N L Y G S G L V N A E A A T R

FIG._3B

FIG._3

